Subjective well-being and households' resilience strategies to COVID-19 pandemic in South Kivu, Eastern Democratic Republic of Congo

Gilbert M. Mugisho (mugishogilbert76@gmail.com)
Université Evangélique en Afrique
Lebon M. Hwali
Institut Supérieur Pédagogique de Kaziba
Fabrice L. Nfuamba
Université Evangélique en Afrique

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Abstract

The South-Kivu province, located in the eastern part of the Democratic Republic of Congo, has not been spared by the COVID-19 pandemic. By the end of March 2022, South Kivu had registered 1682 confirmed cases of COVID-19. Different response measures had been used to maintain the disease. The effects of the response measures had worsened the state of poverty and vulnerability among the population. This study aimed to assess the results of the COVID-19 pandemic on the subjective well-being of South-Kivu households and the impact of resilience strategies on the well-being of these households. The data were collected thrice in 474 households, from August 2020 to February 2021, and analyzed using the structural equations model. We found that 85% of households lost their purchasing capacity, 98% were afraid of being infected with COVID-19 and 54% complied with health measures. The results showed that the resilience strategies adopted by families had increased their subjective well-being. In general, during the third round, the health (84%), socioeconomic (97%) and psychological (97%) dimensions of resilience had a positive impact (68%) on the subjective well-being of South-Kivu households. This study suggests that, in addition to the adaptive resilience strategies developed by families, there is a need to develop proactive and early warning measures for unforeseen pandemics that could lead to health crises.

1. Introduction

By the end of March 2022, the Democratic Republic of Congo (DRC) reported over 86,598 positive cases of COVID 19 and 1,335 deaths (Reuters, 2022). South Kivu province, having reported 1682 COVID-19 cases, is ranked fifth in DRC to be affected by COVID-19. Even though the number of cases is relatively modest in South Kivu, the measures implemented by the authorities, mainly confinement and restrictions on various activities, coupled with psychosis caused by widespread panic and misinformation, have accentuated the poverty and vulnerability of the population of South Kivu. The crisis has made the province, which suffers from repeated conflicts and security crises, more fragile. Many studies have focused on COVID-19 health issues and their multidimensional consequences on well-being (Wimba et al., 2020; Stringer et al., 2020; Bashizi et al., 2021; Jacobs et al., 2021; Katchunga et al., 2021; Pole Pole Bazuzi & Marchais, 2021; Nkodila et al., 2021); and on understanding the direct or indirect relationship between resilience and subjective well-being (SWB) (Yıldırım & Arslan, 2020; Yıldırım & Güler, 2021). Other studies have only considered the effects of COVID-19 on SBW (Varani et al., 2020; Zacher & Rudolph, 2021; Lee, 2022). These studies have only considered resilience based on the psychological dimension.

Our study attempts to go beyond the psychological dimension by integrating socioeconomic and health aspects of resilience, such as handwashing, traditional self-medication, wearing of masks, and social distancing, in the context of vulnerability of South Kivu residents. This research shows that the degree of resilience of households plays an essential role in maintaining their SWB. For example, strengthening household resilience to disasters is vital in reducing the impacts felt by the poorest communities, which are often disproportionately affected. The objective of this study is to assess the results of the COVID-19 crisis on household SWB and to evaluate the impact of households' resilience mechanisms on their SWB.

Therefore, the interest of this study is to effectively and appropriately orient the socioeconomic response toward the effects of the COVID-19 crisis.

2. Literature Review

Resilience is a concept with a broad semantic scope. Several authors argue that there is a lack of understanding of how to define resilience. Based on a vast corpus of research, Andreou et al. (2020) define resilience as the achievement of positive adaptation faced with significant adversity and stress, and has been associated with positive mental health outcomes. In other words, resilience is a positive and adaptive way of coping with stressful events. An individual's strengths, resources and environment enable them to adjust better and rebound in the face of adversity (Tugade & Fredrickson, 2004; Windle, 2011; Kimhi et al., 2020; Andreou et al., 2020). Resilience is revealed by positive adjustments made by an individual despite the difficult situation he or she is going through, as is the case with the COVD-19 crisis. Zautra et al. (2010) consider resilience as a result of successful adaptation to adversity. Apart from psychological dimensions, researchers from various disciplines describe resilience as the ability to adapt to the environment despite hazardous or challenging circumstances (Tomás et al., 2012; Jones et al., 2018; Kimhi et al., 2020).

This study focuses on understanding household resilience to COVID-19. Resilience requires a multidimensional understanding: psychological, health, socio-economic, etc. Diverse models of resilience emphasize the interaction between people and environment in which they mobilize the personal and social resources needed to cope with stressful situations. In addition, sociodemographic characteristics, precariousness, health and psychological status can also influence resilience (Block & Kremen, 1996). Personal factors influence responses to stress or adversity (Tomás et al., 2012). Therefore, according to Yıldırım & Belen (2018), resilience could play an essential role in the SWB in response to adversity.

The SWB concept relates to the cognitive and emotional aspects of assessing an individual's well-being (Diener, 1984). The SWB reflects how individuals perceive their well-being (Zeidan, 2012). The concept attracts greater interest from researchers, including economists such as J.E. Stiglitz and A. Sen (Diener et al., 1999; Zeidan, 2012). On the contrary, people react in various ways when faced with the same circumstances. They evaluate their living conditions according to their expectations, values and previous experiences (Diener et al., 1999). For example, individuals react to the COVID-19 crisis in very different manners. SWB can be defined as an individual's quality of life in terms of positive and negative affects and overall life satisfaction (Diener et al., 1999, 2003; Cattelino et al., 2021). As a result, people with high SWB are more likely to experience frequent positive and less negative affect and are generally more satisfied with their lives (Yıldırım & Belen, 2018). This definition highlights three components of SWB: positive affects, negative affects and life satisfaction. Positive and negative affects reflect the effectual nature of SWB and life satisfaction refers to its cognitive aspect (Zacher & Rudolph, 2021).

Regarding the relationship between resilience and SWB, which relates to the discussion of this paper, numerous empirical studies have demonstrated a positive relationship between resilience and SWB.

According to Yıldırım & Belen (2018), resilience strongly influences the SWB against adversaries. Using the structural equation model, Joshanloo (2017) examined the indirect linkages between resilience and personal growth initiatives, external happiness and SWB. Its results attested that stability influences the relationship between superficial happiness and SWB indices, including positive affect, negative affect, and life satisfaction.

The framework for our analysis can be understood in the following terms: the crisis of COVID-19 and its effects are impacting households', particularly in the reduction of their SWB. Families might have developed coping capacities to deal with the problem and its impact. The coping strategies that households demonstrate help to improve their SWB (Fig. 1).

The subjective measure approach involves the evaluation of resilience independent of status variables. Figure 1 presents the subjective measure of resilience through an independent indicator (often a well-being indicator). This indicator is then regressed on household internal and external variables (Alfani et al., 2015). This is the approach used in this paper. The dimensions of resilience are based on variables that are measurable by the perception of the individuals who experience these shocks when using the subjective method. The resilience index is calculated using the different dimensions (Béné et al., 2014; Jones et al., 2018). Data on dimensions of resilience is also collected directly from households. Similar to most studies that have addressed the relationship between resilience and BES in an adversarial situation, the resilience index is calculated using the structural equation method (LISREL or PLS) (Jones et al., 2018). Structural Equation Models (SEM) with latent variables are multivariate models that are used to model causal structures in data. The value of structural equation modelling lies primarily in its ability to simultaneously test for the existence of causal relationships between several latent variables. The measuring model consists of all the relationships between the indicators and the latent variables or constructs that they are measuring. The structural model comprises of all the relationships between the latent constructs: it generally represents the network of causal relationships that the researcher wishes to establish.

3. Methodology And Data Collection

3.1. Study area and process

This study was conducted in South Kivu province, one of the 26 provinces in DRC (Fig. 2). A mixed team of 50 enumerators completed data collection. COVID-19 safety protocols including wearing of masks, the use of disinfectants, and the maintenance of social distance between the respondent and the interviewer were all adhered to. Each enumerator was required to follow up 10 households thrice, in a two-month interval. The data collection took six months (from August 2020 to February 2021). To improve traceability and confidentiality, each household was assigned an identification number. During the individual interviews and oral survey, the responsible household members (head of the household or spouse or an adult in the household) were interviewed. Data were collected as the COVID-19 pandemic progressed (Table 1).

Table 1
The evolution of COVID-19 and its associated effects

Round 1 (Emergence of Covid 19)	Round 2 (End of the 1st wave)	Round 3 (2nd wave)
Access to COVID-19 information	Reduction of specific prevention measures	Resuming protective measures
Implementation of protective measures	Awareness-raising on protective measures	Disproportional adoption of measures
Borders closed	Mobility resumes conditionally	Reopening of migration activities
Confidence crisis between government and citizens	Progressive adaptation of the community	Progressive adaptation of the community
Psychosis	Resilience	Resilience
Self-medication	Self-medication	Self-medication
Socioeconomic vulnerability	Extreme poverty	Weak resumption of activities
Loss of purchasing capacity	Loss of purchasing capacity	High price and scarcity of assets
Changing the diet	Food insecurity	Food insecurity
Intra- and inter-personal conflicts	Rupture of social relationships	Reopening of social venues

Five hundred one households were interviewed during the first stage. Still, due to the unavailability of two interviewers and many households, only 474 households were sampled thrice. The sampling method used allowed the results to be extrapolated at different levels. 306 households were interviewed in Bukavu, the province's pandemic epicenter, 96 households in Uvira, and 72 households in Kabare.

3.2. Household demographic information

Table 2
Household demographic information

Variables	Parameters (%)	Bukavu	Kabare	Uvira	Total	Sign.
Gender	Male	47	49	65	51	**
	Female	53	51	35	49	
Age	Under 50	81	92	77	82	
	Above 50	19	8	23	18	
Marital status	Single	25	14	17	22	*
	Maried	71	78	65	71	
	Others	4	8	19	8	
Education	Total illiteracy	3	29	6	8	*
	Partial illiteracy	21	46	27	26	
	Literacy	76	25	67	67	
Professional activity before COVID-19	Employed	45	28	47	43	**
	Trader	23	31	21	24	
	Farmers	13	31	17	16	
	Entrepreneurship	13	10	7	11	
	Unemployed	7	4	7	6	
Household size (sd)		8(2.9)	8(3.2)	7.5(4.2)	7.9(3.3)	*
□ 5 years (sd)		2.7(0.6)	3(0.8)	2.8(0.7)	2.8(0.6)	*
≥ 60 years (sd)		3.1(0.3)	2(0.0)	2.1(0.3)	2.1(0.3)	**
Chi-square test (*p□1% ; **p□5% ; ***p□10%						

Table 2 indicates that the average household size was eight persons (sd = 3.3). In 27% of the households, there were at least two people above 60. In 60% of families there were at least 3 children under 5. The majority of the respondents (82%) were below 50, while 18% were over 50 years old. Men accounted for 51% while women accounted for 49%. Complete illiteracy was 7% while partial illiteracy was 26%, and literacy was 67%. Results revealed that the main occupation of the head of household before the occurrence of COVID-19 as: 43% were employed (in public or private institutions); 24% were traders; 16% were farmers and were involved in other rural activities; 11% were entrepreneurs and craftsmen; and 6% were unemployed.

3.3. Variables and measurement model

The empirical study of household behaviors necessitates the validation of the hypotheses of anticipations and perceptions of South Kivu households since they became aware of COVID-19's health threats and the hypotheses of adaptations to deal with COVID-19's impending risks. Therefore, this study started from the hypothesis that the quality of life corresponds to the actualization of the individual's fundamental values in life (Myers & Diener, 1995). This reflects that the person is the best person to judge the quality of life. This response to every individual's need to be comfortable with themselves and their social and emotional environment (Tap & Roudès, 2008; Zeidan, 2012).

Given the importance of the information needed and the sensitivity of this study, a multidimensional quantitative measure was employed. This approach put into consideration the sociocultural characteristics of the households interviewed. Therefore, the subjective resilience measurement approach incorporated emotional elements such as risk perception, beliefs, culture, social norms, social cohesion, etc. (Diener & Suh, 1997; Steel et al., 2008).

To mitigate the biases associated with individual declarations as much as possible, this study employed the time allocation (U-index) approach proposed by Kahneman & Krueger (2006). The first step of calculating the U-index is determining the nature of the episode experienced by the individual. The individual describes his or her emotional state by providing the intensity of several feelings classified into two groups of emotions, negative or positive emotions. The group of positive emotions may contain feelings such as joy, happiness or fun, while the negative emotions refer to feelings such as frustration, anger, depression or stress (Krueger & Schkade, 2008; Zeidan, 2012; Song, 2015).

The analysis consisted measuring the SWB by independent indicators (Diener et al., 1993; Kahneman & Krueger, 2006; Diener & Diener, 2009), resilience (Jones & Tanner, 2017) and life satisfaction, which were regressed on exogenous and endogenous household variables (Yaro, 2019). These variables were measured through individuals' perceptions and different dimensions (Diener et al., 2003). The SWB index was then calculated using the structural equation method (Tomás et al., 2012) through the SPSS Amos 26 software (Fig. 3).

Resilience (RES) was measured along three dimensions: health, socioeconomic and psychological. This collaborates strongly with the work of Marshall & Marshall (2007) and Jones & Tanner (2017). Preliminary, twenty items on a five-point scale (1 = almost never, 5 = almost always) were used to assess resilience. The following eight items were chosen after filtering. Two items for health resilience (RESANT) were selected: namely compliance with sanitary measures and barriers (MESB), and treatment when a family member exhibits virus symptoms (TRAIT). Three items for the socioeconomic dimension (RESECQUE) were chosen, namely food reserves (non-perishable) and medicines (RESALIM), control of one's socio-professional environment (CONTENV), and consultation with the reliable source of information (SOURCF). For the psychological dimension (RESPSY), three items were selected: self-acceptance/feeling of competence (ACCSOI), acceptance of the change (ACCHANG), and remaining calm and confident (CALM).

The SWB was interpreted from two perspectives: affect (both positive and negative) and life satisfaction (Tournois et al., 2000). Positive and negative affects were measured by six items of five scales (1 = Very little to 5 = Very strongly). For positive affects (AFP), three items were selected including "I feel happy with the life I lead" (HEUR); "I am a good person with a good life" (BONVIE) and "I am optimistic about my future" (OPTIM) (Lyubomirsky et al., 2005). Three items were selected for negative affects (AFN), including " I feel in pain" (DOUL), "I feel worried because events are beyond my control" (INQU) and "I am sometimes in a state of anger about this event" (COLR) (Krueger & Schkade, 2008). General life satisfaction (SATGEN) was measured using three items on seven scales (1 = Very dissatisfied to 7 = Very satisfied) namely "I am satisfied with life" (SATISVI); "I am satisfied with family life" (VIEFAM) and "I am satisfied with my health status" (SATSAN) (Baggio & Colliard, 2007).

3.4. Confirmatory factor analysis

The exploratory factor analysis preceded the confirmatory analysis. In the confirmatory analysis, the items retained were those with an internal consistency coefficient with Cronbach's Alpha (α) is ≥ 0,70 and/or to all other lower coefficients, close to this value and with saturation coefficients (factors loading γ) are ≥ 0,30 (Kamanzi et al., 2017) (Table 3).

Table 3
Summary of the confirmatory analysis

	Absolute indices						Incremental indices		Parsimonious indexes	
	χ^2	df	P-value	GFI	SRMR	RMSEA	TLI	CFI	χ^2/df	AIC
Round 1	262.5	105	0.000	0.939	0.0602	0.056	0.872	0.901	2.5	358.508
Round 2	270.5	105	0.000	0.936	0.058	0.058	0.829	0.914	2.576	366.467
Round 3	295.3	105	0.000	0.930	0.062	0.062	0.823	0.912	2.812	391.259

The procedure is stopped when the fit indices are acceptable in the confirmatory factor analysis process. For example CFI ≥ 0,90, RMSEA ≤ 0,08 (Roussel et al., 2002); *SRMR < 0.09 ; χ^2/df < 5.* The measurement model fits are acceptable for all the three models, as they are close to the recommended values. While some of the indices (SRMR > 0,05 et p < 0.05 of chi-square = χ2 of resemblance) have good reason to expect a substantial residual problem between the variables and null correlation between the included variables (Roussel et al., 2002).

4. Findings

4.1. Household perceptions of COVID-19

Table 4
Household perceptions of COVID-19

Variables	Parameters (%)	Bukavu	Kabare	Uvira	Total	Sign.
First hearing of Covid 19	Since 2019	25	19	15	22	
	January to March 2020	68	74	81	72	
	After march 2020	7	7	4	6	
Channels of accessing information	Radio	30	43	37	33	*
	TV	24	15	11	21	
	Social media	23	8	19	20	
	Local authorities	5	4	7	5	
	Religious leaders	6	11	3	6	
	Neighbor	12	20	24	15	
COVID as Dangerous disease	No	3	1	1	2	
	Yes	97	99	99	98	
Adopted actions	Adherence to measures	52	54	64	54	
	Self-medication	18	15	19	18	
	Medical consultation	9	4	7	8	
	Nothing	22	27	11	21	
Effects on main activities	No	24	43	38	30	*
	Yes	76	57	62	70	
Impact purchasing capacity	No	18	5	11	15	**
	No	82	95	89	85	
Change diet	No	17	6	14	15	**
	Yes	83	94	86	85	
Chi-square test (*p□1% ; **p□5% ; ***p□10%						

The results in Table 4 show that during this period, 94% of the households were aware of the existence of COVID-19 before March 2020 (a period by which COVID-19 has reached the DRC). Only 22% of households surveyed were aware of when the pandemic started at the end of 2019. The most informed in real-time was in the city of Bukavu, as they had more accessible to information through TV channels, the

Internet, and official magazines than in rural areas. During the first quarter of 2020, authorities alerted about COVID-19. The pandemic was reported in all mass media and social media channels. Later on, 98% of the households considered COVID-19 a dangerous disease of this century. During the COVID-19 period, 70% of household heads reported adverse impacts on their main activities. This was because it had disrupted their daily activities and reduced their household purchasing capacity for food by 85%. This led to a change in diet. The psychosis caused by the disease and the need to stock food increased demand and prices of food in a context of limited supply.

However, 54% reported that they did comply with protective measures for COVID-19. In South Kivu, 21% of the households trivialized the pandemic. According to them, COVID-19 was only a pandemic that they assumed affected one category of people, especially those living in Europe. They argued that it was being used as a lucrative business by the political and administrative authorities. South Kivu households were committed to self-medication strategies (18%) using traditional medicines (lemon, lemongrass, eucalyptus leaves, etc.) to avoid social stigmatization in the event of suspecious pathology (flu-like symptoms and others). Unusually high mortality rates explain this behavior in health care facilities under similar conditions. Households believed that COVID-19 indirectly affected them because they were required to follow certain restrictions. These constraints caused disruptions in their entire life, affecting their subjective well-being.

4.2. Resilience and subjective well-being: an application of the structural equation model

Table 5
Presentation of the coefficients of the structural equations

	Arcs	Coefficients 1	Coefficients 2	Coefficients 3
Resilience	RESANT <—RES	0.753***	0.862***	0.843***
	RESCQ <— RES	1.165***	0.935***	0.972***
	REPSY<—RES	1.008***	1.001***	0.97***
Subjective well-being	RES <— BES	0.537***	0.555***	0.68***
	AFP<—BES	1.039**	1.017***	1.025***
	AFN<—BES	-0.272***	-0.265***	-0.1
	SATG<—BES	0.753***	0.747***	0.732***
** p < 1% (sign.; ***p = 0 (absolutely sign.)				

The structural equation models (Table 5) helped determine whether the observed regressions between latent variables were associated with significant causal links and adjusted for measurement error. For all the three models derived from the three rounds, the resilience developed in response to COVID-19 was

found to explain positively and significantly the SWB of households in South Kivu, based on the very high coefficients. In comparison to economic and psychological resilience, we discovered that health resilience had a low coefficient. However, in the second round, health resilience increased to 86%. Psychological resilience dropped from 100.8% in the first round to 100.1% in the second and 97% in the final round. Economic resilience decreased in the second round (from 117–94%), but incresead again in the third (97%)

The analyses found that only the negative affect variables hurt the SWB of the families. In the third model, there was an insignificant coefficient on the SWB. Finally, in all three models, the combination of the positive affect and life satisfaction variables positively and significantly affects SWB. Resilience influenced SWB by 53% (first round), 55% (second round) and 68% (third round). Life satisfaction by approximately 75% (round 1), 75% (round 2) and 73% (round 3). Positive affect moved from 104% in the first round to 102% in the second round, and then back to 103% in the final round. Other hand, the negative affect hurts SWB by about − 27% in round 1 and 2 to − 10%. For example, in the third round, for every unit increased in negative affect, SWB decreased by 0.1 unit.

Table 6
Standardized indirect effects of observed variables on BES and RES

Variables	Round 1		Round 2		Round 3	
	SWB	RES	SWB	RES	SWB	RES
REPSY	0.541		0.555		0.66	
RESCQ	0.625		0.519		0.573	
RESANT	0.404		0.478		0.661	
SATSAN	0.454		0.573		0.539	
COLR	-0.105		-0.128		-0.044	
CALM	0.253	0.472	0.342	0.617	0.342	0.503
VIEFAM	0.608		0.596		0.674	
ACCHANG	0.233	0.435	0.285	0.513	0.295	0.433
OPTIM	0.505		0.374		0.433	
BONVIE	0.675		0.67		0.654	
HEUR	0.63		0.641		0.65	
INQU	-0.051		-0.082		0.043	
SOURCF	0.268	0.499	0.326	0.588	0.366	0.539
SATISVI	0.672		0.677		0.78	
ACCSOI	0.28	0.521	0.332	0.598	0.379	0.558
RESALIM	0.251	0.468	0.288	0.519	0.343	0.505
CONTENV	0.305	0.568	0.286	0.516	0.302	0.444
DOUL	-0.173		-0.206		-0.071	
MESB	0.284	0.528	0.319	0.575	0.443	0.651
TRAIT	0.188	0.35	0.251	0.452	0.291	0.427

In addition to the direct effect, Table 6 summarizes all indirect effects identified by the analysis model. The results revealed that the observed variables indirectly affect SWB through the three dimensions of resilience, impact and general life satisfaction. Apart from the items on negative experiences of households in South Kivu, all variables had a positive indirect effect on SWB. This changed in some cases, for example in the third round where worry had a positive indirect effect of 4% on the SWB.

5. Discussion

In the DRC, COVID-19 pandemic has not only caused a health imbalance, but has also led to many upheavals that are likely to negatively impact the SWB and the security of more than 70% of households. The ongoing health crisis and its socioeconomic hazards are exceptional (Foa et al., 2020). These constitute a threat to household functioning, goals or values through financial and job losses, social isolation, changes in social relationships, disturbance of daily life activities, lack of guidance, changes in consumption practices, withdrawal of activities, schools closing, and disruption in the availability of goods and services (Kasongo, 2020). In South Kivu province, barriers have disrupted the habits and behaviors of economic actors. This situation has slowed business activities and prevented households from responding to their socioeconomic needs because they are isolated from other provinces, and neighboring countries (Kuma, 2020).

In this regard, 98% of the households surveyed believed the pandemic was a health risk (massive deaths, etc.), even though the population's living conditions, as well as beliefs and misinformation, led them to dismiss the pandemic (Stringer et al., 2020; Xu et al., 2020). Due to pressure from the political-administrative authorities, about 81% of the respondents stated that they had complied with at least one of the measures to curb the spread of COVID-19 (Liaga et al., 2020; Pole Pole Bazuzi & Marchais, 2021). The population has developed some strategies to cope with COVID-19 due to the measures promoted by the political authorities. These practises have become routine in some households and making them more resistant to the threat of COVID-19(Table 5).

Even though COVID-19 appeared to be under control in South Kivu province, 85% of those polled reported a loss of purchasing power, resulting in a change in diet (M. A. Balasha et al., 2020; M. B. Balasha et al., 2020; Hobbs, 2020; Shilomboleni, 2020). Households in South Kivu province have developed a resilience that has allowed them to maintain their SWB level through adherence to sanitary measures and barriers (hand washing, social distancing, regular use of nose plugs), self-medication, and treatment when a household member has flu symptoms (Legido-Quigley et al., 2020; Ly & Oudmane, 2020). Having access to reliable information about the spread of COVID-19, households developed a lifestyle that allows them to control their social and emotional environment, and have also stored food to deal with food shortage.

Structural equation analyses indicated a positive relationship between demonstrated resilience and subjective household well-being (53% for the first round; 55% for the second and 68% during the third round). In other words, the higher the resilience strategies (Lallau & Thibaut, 2009; Yaro, 2019), the higher the SWB (Zacher & Rudolph, 2021). These elements supported our hypothesis, which was endorsed by the study of Yaro (2019), which argued that absorptive capacity, defined as a household's assets, access to credit and financial capacity, enables it to increase its level of well-being in the event of a climatic shock or other adversity (drought or flooding in its case).

This study has demonstrated the link between resilience and SWB and showed that SWB is determined by cognitive aspects of individuals and their level of life satisfaction. The results of the structural model showed that life satisfaction (family life, life and health satisfaction), and emotional reactions (optimism, happy, a good life) play a prominent role in a household’s SWB.

6. Conclusion

This study evaluated the effects of the COVID-19 crisis and the resilience of households on their SWB. The results obtained from this study enabled us to assess the households' perceptions of South Kivu on COVID-19. We found 85% of households lost their purchasing capacity, 98% were afraid of being infected with COVID-19 and 54% complied with health measures. From the structural equations analysis, we could identify the implication of household resilience in the combination of its three dimensions in maintaining their SWB. Resilience as a latent variable captured by dimensions such as health measures and socio-economic and psychological elements contribute progressively (to 53%, 55% and 68%) of the increase in SWB of households. Households considered adherence to barrier measures, self-medication and treatment when a household member has flu-like symptoms, and access to reliable information on the spread of COVID-19. Theoretically, the results contributed to scientific progress by observing the effects of emotional stability for the first time in our environment. By this study's findings, we suggested that, in addition to the adaptive resilience developed by households, there is a need to develop proactive and early warning measures for likely future health crises. Learning about best policies and practices for building resilience and the capacity to respond to future pandemics is also essential.

Declarations

Author contributions

All authors prepared the conceptualization, formal analysis, and investigation; GMM and LMH wrote the Methodology and Writing - original draft preparation; FLN supervised. All authors reviewed the manuscript

Conflict of Interest

The authors declare that they have no competing interests

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Figures

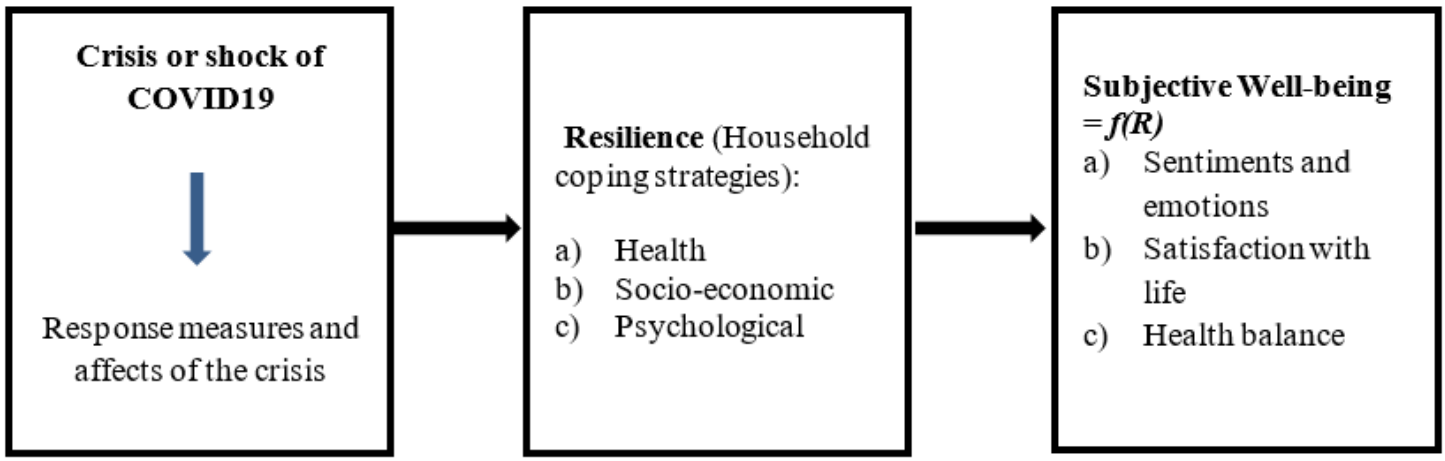

Figure 1

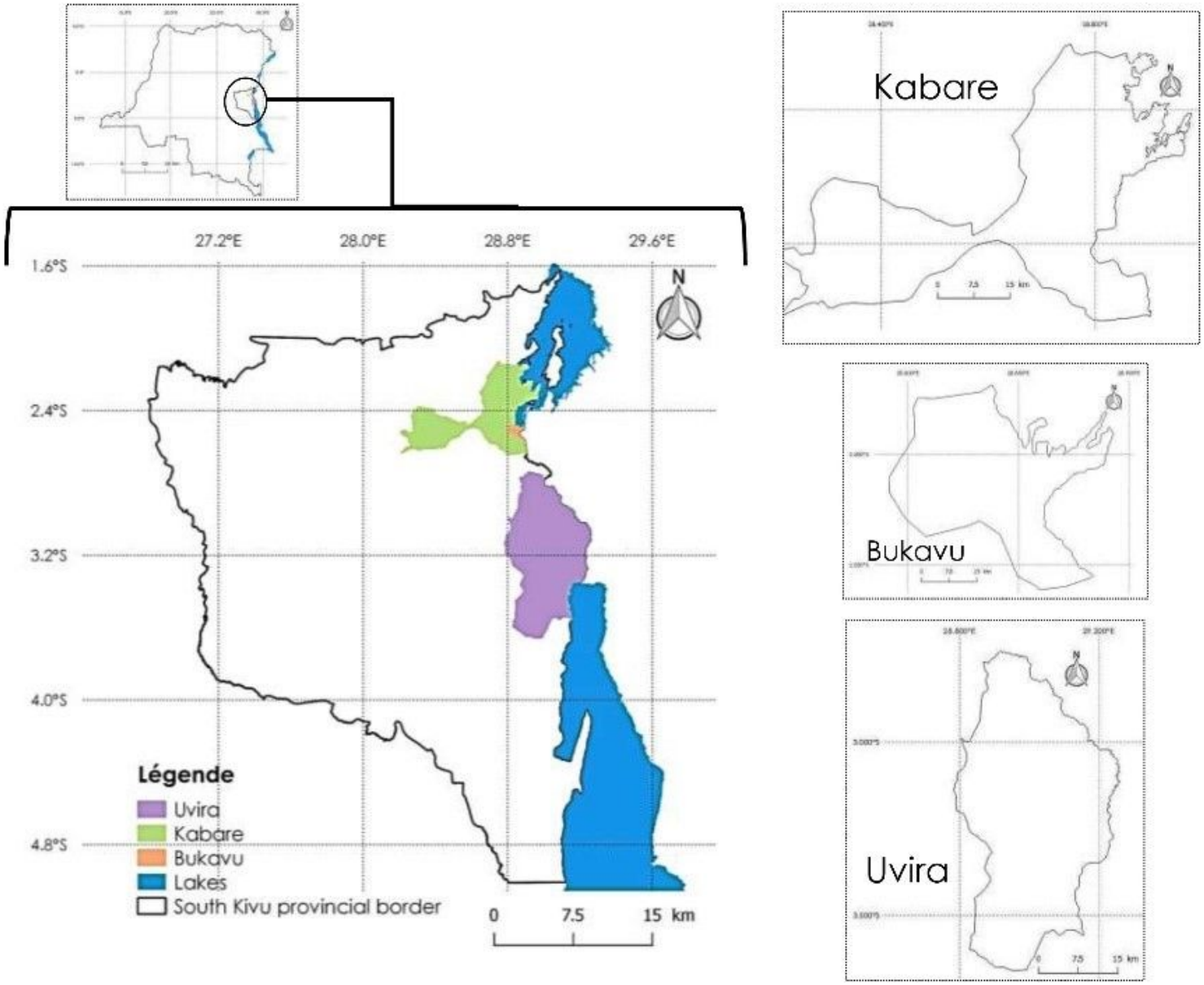

Figure 2

Area of Study

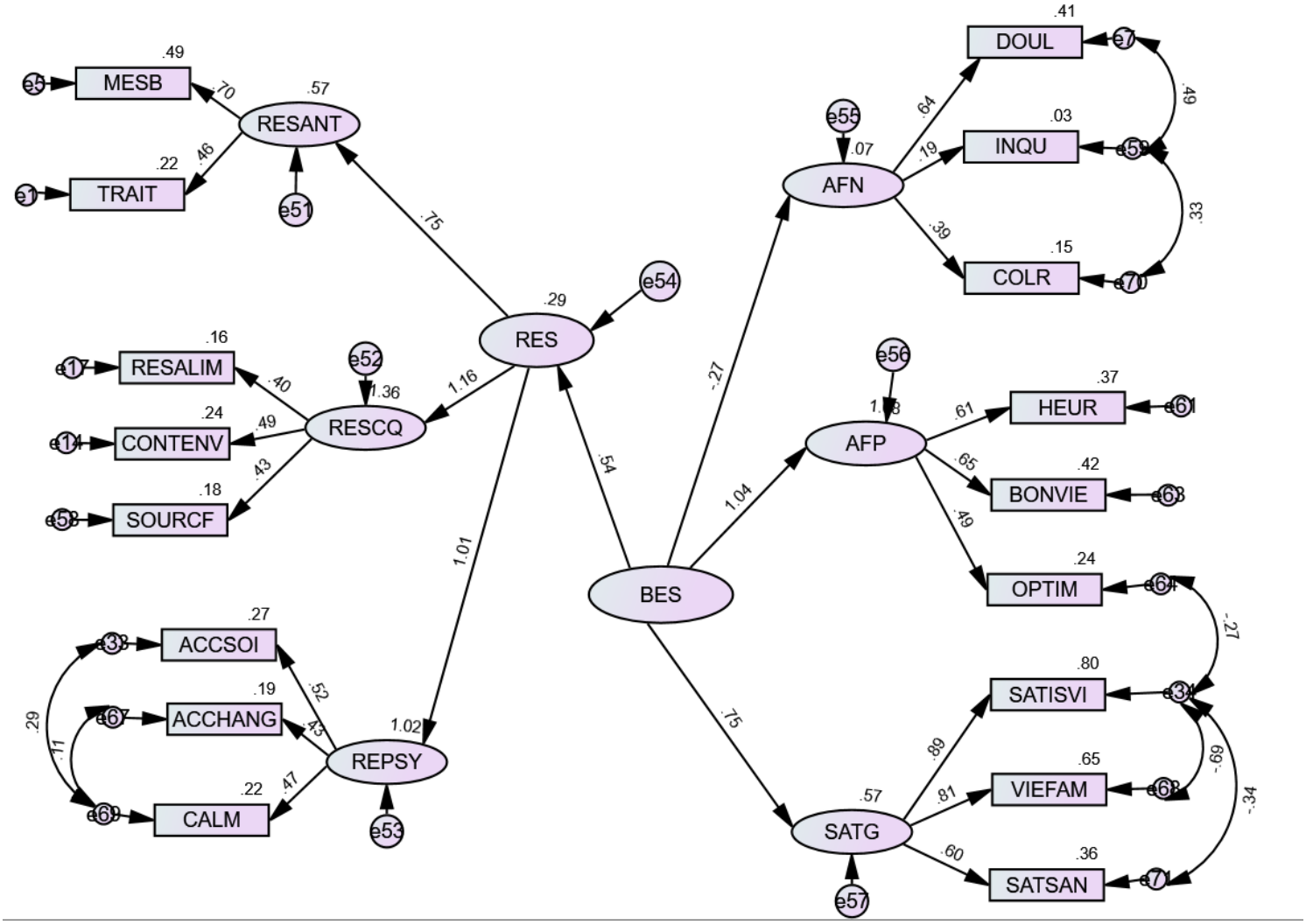

Figure 3

Structured Equations Diagram